

## ABSTRACT

Methods for making thin film filters having a negative temperature drift coefficient are the subject of the present invention. Such filters can achieve better optical control within an operational temperature range from  $-5$  to  $70$  degrees centigrade. A first embodiment of the present invention includes the steps of: 1. providing a substrate wafer which has a coefficient of thermal expansion (CTE) greater than that of a selected film stack material; 2. polishing the substrate wafer; 3. depositing thin film layers made of the film stack material on the substrate wafer at a temperature substantially higher than room temperature; 4. cooling the substrate-film stack laminate to room temperature, thus forming a convex-shaped laminate; 5. cutting the cooled laminate into pieces. A second embodiment includes the steps of: 1. providing a laminate compose of a glass substrate and a film stack; 2. using at least one ion beam source to bombard the film stack of the laminate with high energy ions; 3. cutting the bombarded laminate into pieces.